Description of Tank etc.

The method to be described was originated and introduced by Dr Barr, Honorary Physician of Liverpool Hospital and called by him — The Tank Treatment —

While acting as House Physician to the Hospital, I had numerous opportunities of studying cases of Enteric Fever so treated, and watching the results.

It has been mainly employed in cases of Enteric Fever, but the results obtained in the disease were so successful that the method has been extended to other diseases, e.g. Acute Tuberculosis and Pylaemia.

Among the cases I shall record later, will be found one of the former diseases so treated.

I shall describe —

1st The construction of the Tank as first used by Dr Barr, and also the various improvements which have from time to time been introduced.

2nd The method of using the Tank.

3rd The Therapeutic action.

4th Some cases I had charge of, under Dr Barr's supervision, the notes of these are taken from Case Report Book of The Liverpool Northern Hospital.

1. The first Tank used at the Northern Hospital, and which is still used when there are more than two cases under treatment, at the same time, consists of a well made wooden box, 6ft long, 2ft 10in wide, and 16in deep.

It is lined with lead, which is painted white, and covered with a thick layer of Shellac Varnish.
The Shellac makes the Tank a very convenient medium for administering electricity.

It is provided with a small discharge pipe running from one corner of the bottom, the Tank being fixed with a slight slope towards that corner.

It is filled by means of a hose running to the hot and cold water taps of the ward kitchen.

The Tank is provided with a sheet of Bed ticking fixed by means of tapes to hooks along the edges, in such a way as to allow the patient's body to be completely submerged when the Tank is filled.

At the top end is another piece of Bed ticking also fixed with Tapes to Hooks, but this is left at a higher level so as to keep the patient's head out of the water.

The Tank has lastly a half lid of wood on which rests a waterproof sheet and bedclothing, to keep in the heat of the water, and thus prevent too rapid changes of the water temperature.

Floating in the bath, there is always a Bath Thermometer so that the water temperature can be read at a glance.

The results obtained from this Tank were so successful, in spite of its many drawbacks, that two more tanks have been put up in a small ward and the following improvements have been made.

1. In the centre of the bottom of the Tank is a large funnel shape closet pan, which is opened and closed by means of a handle fixed to the outside of the tank.

The closet pan opens directly into a large discharge pipe which runs into the general sewerage system.
of the hospital, with a water trap for disinfecting purposes.

In the bedtricking a hole is cut directly over the closet pan.

The patient is placed, with buttocks supported on an air cushion, over the hole and thus the feces when passed sink directly into the pan and can be removed at once by merely opening the pan.

This is of very great advantage in severe cases where the motions are being passed involuntarily.

Another advantage of the pan and large discharge pipe is that—

The Tank containing 70 gallons, can be emptied in 3 minutes, thus saving much time and labor during the daily process of cleaning.

At the head of each Tank Hot and Cold water taps are fitted into the wall by means of a piece of hose, with one arm fixed to the hot water tap and the other to the cold, the temperature of the water in the Tank called "The Tank Temperature" in contradistinction to the "Patients Temperature" can be regulated to a nicety and with perfect ease.

A patent bed lift is fitted to each of the improved tanks, by means of which the heaviest patient can be raised and lowered with practically no trouble.

It consists of a light wooden frame fitting fairly closely to the sides of the tank, leaving just enough room to move up and down.

At each corner of this frame is fitted a perpendicular piece 6 in. in depth, to keep the frame that distance off the bottom of the Tank.
At the top and bottom ends of the frame are two rings to which are fastened wires running over pulleys in an iron frame above, and connected with a small Handwinch fitted to the bottom end of the Tank outside.

The Bedticking is attached to this frame, instead of to the edge of the Tank as previously.

By means of this lift the patient can easily be raised for Sanitary purposes, and when it is required to remove him from the Tank.

"Mode of Use"

When a patient is placed in the Tank, he is wrapped in a blanket, placed on the bedticking, and completely submerged, except the head which is supported on an air cushion, placed on the narrow piece of bed tucking.

It is important to wrap the patient in a blanket and not in a sheet, so as to lessen the risk of any portion of the body becoming suddenly chilled, should such portion come above the level of the water.

The buttocks are supported on a circular air cushion the opening of which corresponds with the opening in the bedticking.

The ears are plugged with cotton wool smeared with Boracic Vaseline.

Prolonged submersion causes a fair amount of softening of the skin, more especially of the hands and feet.

The skin however recovers itself very rapidly after the patient is permanently removed from the tank and general inunction of the skin has been found to be quite unnecessary.
When first used the "Water temperature" was regulated more or less in proportion to the "body temperature" and in some cases of marked pyrexia was kept as low as 90.

Experience soon showed that to be rarely necessary and now the general rule is to start with the "water temperature" at 93°- 95° according to the case, and regulate it as necessary. As the "body temperature" falls " the "water temperature" is raised and Vice versa. I saw one really obstinate case of hyper-pyrexia on which a "water temperature" of 90° had no effect. This hyper-pyrexia was however overcome by having a constant supply of water with a temperature of 90° entering the Tank, and the discharge pipe opened just enough to keep the water at the same level. In this way the patient was placed in a constantly circulating supply, and this appeared to greatly increase the Antipyretic action.

In ordinary cases the water is stirred now and then by the nurse so as to ensure a fairly even water temperature throughout.

Every morning the patient is removed and laid on an adjacent bed while the Tank is emptied, thoroughly cleaned and refilled. This operation usually takes about 3/4 hour.

Numerous disinfectants were tried in the water—i.e. Sulphate of Iron; Sulphuric acid & mercuric Chloride—but this very rapidly mercurialised the patient, Crystals of Boracic acid, and this is the one that is always employed now.

The questions naturally arise, — What cases are suitable for the Tank Treatment? What symptoms are to guide one in employing it? To these no very definite answer can be given, though a few hints may give some general ideas.
on which to work at first.

The great majority of cases in which I saw it used were those in which there was "general and well marked want of tone," as evidenced by weakness and Irregular heart Action. Low Muttering Delirium, Obstinate Diarrhoea or Constipation, Constant Vomiting, Dry cracked & furred Tongue, Tympanitis, with or without Intestinal Haemorrhage. Also cases with Complications, Inflammation of the Lungs, Bone Necrosis, etc.

Occasionally patients when placed in the Tank become alarmed and excited at their novel position and surroundings, but an opiate, preferably, usually soothes them. If not, they may be removed for a short time and then replaced.

It must not be thought that, when a patient becomes a "Tank Case," no other treatment is to be employed.

The ordinary symptomatic treatment must be made use of, just as if the patient were being treated in bed.

I mean to say that though the Tank possesses very marked and beneficial therapeutic actions of its own, ordinary methods may be employed at the same time, and frequently their effects are markedly accentuated by the patient's immersion.
The following cases came under my care, while I was House Physician at the Liverpool Northern Hospital, and the notes are from The Case Report Book of that Hospital.

William S---, 11 years, Schoolboy, 10 Lewellyn St, Liverpool.

Admitted July 9 1894, Discharged Sept 27th 1894.

Disease, Acute Miliary Tuberculosis

Complaint. Pains in the Head, Chest, & Throat, Diarrhoea.

Duration. 10 - 11 Days.

Family History. No Tuberculosis History to be got. Both parents alive and well, Patient is one of a large family, who are all alive & well.

Present illness before admission. The history is not very definite. Began with severe pains in the head & throat 11 days ago and two days later these were followed by pains in the chest. There was some intermittent diarrhoea and marked Dysentery. Patient sent to Hospital as a Case of Enteric.

State on Admission July 9th 1894.

He is rather a thin boy of 11 years, Face flushed, Pupils dilated, Lips Swollen, red & Cracked, Tongue furry, And mouth full of Sordes; Marked Tonsillitis and Pharyngitis, Some Aphonia and Laryngoscope shows some Laryngitis.

Abdomen not distended, nor tender on pressure. Skin of body covered with Flea bites, But no Rose colored spots.

Liver a good deal enlarged, reaching 1 1/2 inches below the Costal Margin, Spleen not Enlarged.

Temp, on admission 101, Pulse 104, and of fairly good strength Weight 49 1/2 lbs, Erlichs Reaction well marked

He is inclined to be drowsy and wandering.
July 10th. During last night the temperature reached 104°, and iced clothes were applied to the chest and abdomen, and temperature soon fell to 99°, and the clothes were then stopped. He had Dr. Reimann's, which caused three motions. Diet ordered was - milk, 2 pints and barley water.

July 13th. The temperature has been irregular and yesterday reached 103°. Iced clothes were applied frequently, and today the temperature is 100°.4.

Diet changed to Mellins food, Mutton broth, and Benders food. Salad stopped and the following mixture given,

\[ \begin{align*}
&\text{Acidi Hydrochlorici Dilute, os.} \\
&\text{Quinina Sulfatis, grs. } 1/4 \\
&\text{Caffeina, grs. } 1/2 \\
&\text{Syropi, grs. } 1/2 \\
&\text{Epsom, grs. } 1/4 \\
&\text{Fr. Seratini, grs. } 1/4
\end{align*} \]

July 14th. For the last few days the symptoms have pointed to acute tuberculosis rather than to Enteric. He has been bright and intelligent and has shown no signs of Stupor. Has had no headache and has slept fairly well. There have been great fluctuations of temperature, the daily range having been from 3 to 4 degrees and in spite of the almost constant applications of iced clothes it has generally risen to 103° sometimes during each day. There has been very marked emaciation.
The pulse has been small and weak, usually 110-112.
Breathing has been hurried with occasional coughs, but little or no expectoration. The lower lobes of both lungs have been getting comparatively solid, and all over the chest and back numerous large, coarse, crepitant rales have been heard, during inspiration and expiration. Expiration prolonged over dull areas and coarse fromites felt. Tubercle Bacillus found in great quantities.

July 16th. The Rales are greatly increased and can now be heard all over the chest. Both lung bases are markedly dull and all through the lungs scattered dull patches are to be got. Respiration 30, and accompanied with marked dyspnoea. The general condition is now very grave. There are general tremors, tongue furred, and cracked and dry. Pulse 98, small, weak and intermittent.

4-30 pm; T 103 Delirious, weight 48 lbs.

5 pm; Patient put into the tank with the water temperature 96°. Patients temperature rapidly fell to 97°, so that at 6 pm Tank Temperature was raised to 98°... and at 8 pm his temperature had risen to 98°.

The patient was very restless and nervous so he was removed from the Tank at 9 pm and given Ruth Dooregor and slept on and off all night.

Put on Beer 1 pt, Sugar 2 oz, Butter 2 oz in addition to the diet he was getting.
July 17th. Hydrogen Peroxide 25 added to each dose of Medicine.

July 18th. The temperature gradually rose all day yesterday and at noon reached 103°, and remained so till 5 pm, when he was put back into the tank with a water temperature of 98°. The pulse at this time was almost imperceptible, but he soon settled down and had an excellent night.

Today the pulse is 110 and of improved strength.

Respiration 26 and practically no dyspnoea present.

Tongue is much moister than still thickly furred.

July 20th. Had very severe pain in the right side last night and distinct friction was to be heard at the level of 3 to 8th ribs in the axillary region.

July 23rd. The pain in the side is still very severe.

Last night he had pulp disease and he slept well.

He is looking very thin & worn, but during the last week he has gained 3lbs in weight.

July 27th. Patient's condition has been very satisfactory till to day when he suddenly complained of severe pains in the right side and epigastrium, which was followed by vomiting of some undigested food.

The pain was relieved by the vomiting.

Microscopic examination of the Sputum showed complete absence of Tubercle Bacillus.

July 30th. He had pain again after food followed by vomiting. All food ordered to be peptonised.
Aug 2nd. General condition greatly improved, Sleeps well and takes his food much better. He has put on 3 1/2 lbs during the last two days. The lungs are very much clearer. Very few rales are to be heard except on the right base. Pulse 120.

Aug 8th. Improvement very marked. The cough has almost disappeared. Percussion note is now clear all over left lung. Posteriorly the breath sounds are very distinct. Expiration is prolonged but there are no abnormal accompaniments.

Put on Fish Diet.

Aug 18th. Patient removed from the Tank. Weight 60 lbs.

Sept 27th. Nothing of interest occurred during convalescence and he was discharged to day in splendid condition weighing 82 1/2 lbs.

Case No 2.

Joshua J, Cabdriver, 55 years, 20 Coleridge St Liverpool.

Admitted Dec 9 1893, Discharged March 31st 1894.

Disease. Enteric Fever.

History. Very indefinite. Has been out of sorts for nearly a month. He had to stop working ten days ago. His intellect is cloudy and nothing reliable can be got from him in the way of family and personal history.

The following is a resume of the notes for Dec 9th to Jan 24th inclusive. He had a very severe attack of Enteric Fever running an acute course and accompanied by Intestinal Hemorrhage and Congestion of both Lungs. This was treated in the ordinary way with Diet, Iced Cloths, Salol, Turpentine, Ergot etc. After a somewhat prolonged...
course he appeared to be convalescing, tho the Temperature
never fairly settled down and he remained in a very weak
and nervous state.

He had a very severe relapse and for this he was treated
by means of the Tank.

Jan 25th 1894 For several days the patient has felt
well, though the Temperature has varied from Normal to 102;
Pulse has range from 100 - 114 and has been regular and of
fairly good strength. Liver has been enlarged. Lungs have
been quite normal, & there has been no cough or expectoration.

Iced Cloths were applied to regulate the temperature, but
they had no effect.

Feb 6th Temperature still remains irregular. The pulse is
small & weak, and occasionally intermittent and usually 114.

4:15 pm, Patients temperature 102°. He was put into the Tank
with the Water Temperature 85°. At 5:15 pm the patients I
Temperature was 99.8, at 8 pm 102.4, and at 12 pm 101°, and at this time the water Temperature was lowered to 93°.

Feb 7th, He had a good night, Pulse weak and small, but no I
longer intermittent. At 8 am his temperature was 99°, so the
Water Temperature was raised to 95°.

Feb 8th, Appears very much better and had a very good night,
Pulse 100 - 108 His Temperature at 4 pm was 102°, but by
midnight it had fallen to 98°.

Feb 9th, Patient is rather drowsy, but he says he feels
very comfortable,
Feb 11th. He had a restless night. Drowsiness is more marked. He had one or two regurgitations during the night, but there was no marked rise of temperature.

At 12 pm he suddenly got much worse. His pulse was very weak and intermittent and at times was almost imperceptible.

He was given eyedrops of atropine and antipyrine.

At 10 30am this morning the pulse was still unsatisfactory so the Antopine Injection was repeated and he was ordered:

- Beer 2 pints in the 24 hours,
- Sf. Terpinum
- Sf. Etherium
- Ffr. Staphisatii
- Hydrogen Peroxide 3p
- Arum Lusitanica

Feb 12th. Patient is much better. Pulse still intermittent.

Feb 13th. Improvement is still maintained. Pulse is stronger and not so intermittent. Tongue is moister and he is taking his nourishment well. He had to be removed from the Tank for 3 hours this morning as one of the ropes broke.

Feb 14th. He is very comfortable and had an excellent night. Pulse 110. Stronger and no intermittence.

Feb 15th. He has been improving every day.

4pm. He has been suddenly seized with very severe pains.
ia the left lower Thorax and Abdomen, No physical signs to account for the pain. He was ordered Bismuth Salicylate gr x, and this gave relief in half an hour.

Feb 19th. He has no pain at all today. Pulse 108, strong and quite regular. Temperature 99.2

Respiration 20. The tongue is clear and moist. He was removed from the tank.

\[\text{P. Permin Sasphate gr.} \]
\[\text{Acids Hypochlorites Lactis mfr. F.} \]
\[\text{Iatrolysin (12%) mfr.} \]
\[\text{Ag Astragales Sasphate mfr.} \]
\[\text{Aqua Chryseum F.} \]
\[\text{Ar. Mortem} \]
\[\text{Signatur. F. Merck, Rosen} \]

March 31st. Patient made a rather slow convalescence having been kept back by slight naevrosis of the right side which caused occasional disturbance of the pulse and temperature. He was discharged to day.
Case No 3.

Thomas O'D., 11 years, Schoolboy, 108 Foley St.

Admitted ApI 5th 1894, Discharged June 18th 1894.

Complaint, Headache and Pains in Stomach.

Duration Seven days.

Personal history. He has had Measles. As a general rule he has enjoyed good health.

Present illness. Seven days ago he had a sudden attack of vomiting, followed by severe pains in the head, Stomach and Legs.

State on Admission. He is a fairly large boy of 11 years. Face is flushed and slightly Cyanosed. The Hands & Nails are bluish. The Lips are swollen, glazed and dry.

The Tongue is dry & Furred.

The Abdomen is not distended, There is no pain nor gurgling on pressure. The Hepatic Pulse reaches 3/4 in, below the Costal Margin. The Spleen is enlarged.

There are no Anterior Spots.

Temperature 102-8. Pulse 96. very small and soft.

It is hardly perceptible at the wrist.

He has been put on Milk 1 pint, Barley water 1 pint.

April 11th. The tongue is still glazed and dry.

The Frachial pulse is good, but the Radial pulse is the same as on admission, there being evidently some abnormal arrangement of the arteries.

April 17th. He is put on peptonised milk diet and Butter 2 ounces.
He is progressing satisfactorily. The Temperature is settling down and the Tongue is much cleaner.

April 20th The Temperature yesterday ran up to 101°, but the patient complained of nothing and had a very good night. Pulse 112 Small and weak.

Iced Cloths applied to the Abdomen and Chest.

The lower part of abdomen is very tender and the Colon seems full so he was given 6th Rhusiad Gp

Pulse 108. The tongue is more furred.

April 23rd The temperature still keeps at a high level and yesterday reached 103°. The Circulation is not very vigorous, the hands and face are cold and blue.

April 26th. He had a good deal of pain in the abdomen last night, so hot fomentations were applied and these soon gave relief. Put on 1 pint of Beer.

April 30th. The temperature was high all day yesterday, reaching 103° in the evening.

He was given Iced Enemata and Iced Cloths were applied to the Abdomen.

4.30 pm. Temperature 102°. Pulse 108, and very weak.

He was put into the Tank with the Water Temperature 95°.

He is very thin and wasted. He has lost 5 lbs since his admission. The Abdomen is tender and rather tympanitic. The tongue is very furred and dry.
The Bowels have moved very freely the last few days, but this has been the result of the Emmata.

May 1st. He had a very good night. At 2am he complained of feeling very cold and as his temperature had fallen so rapidly the Water Temperature was raised to 96°, but it was lowered again this morning to 95°. At 12am his temperature was 98° and he was very comfortable.

May 2nd. Yesterday afternoon he became very restless and at 4pm had a Rigor and his temperature ran up to 101-2°. At 5.30pm it had fallen to 97-8° and he complained bitterly of cold. At 6pm he was removed and left out till 8pm. At this time his temperature was 104-8°, so he was put back. He had a very good night sleeping nearly all the time and at 7am this morning his temperature was 97-6°, so the water temperature was raised to 96°.

Today he seems much better. Pulse 100 and stronger than it has been for sometime Past.

About half an hour after he had some food he was seized with severe epigastric pains, he was given a dose of As. Quinine and this gave relief almost at once.

May 4th, Pulse 110, Tongue is moist and clean, Temperature rose to 100° so the Water Temperature was lowered to 95°.

May 7th, The Temperature has varied a great deal. At some part of the day it has been subnormal.

The pulse still keeps rapid. There is a nasty smell
coming from the right ear, but there is no discharge.

May 9th. The temperature is now settling down very
nicely. The pulse is very much improved in strength
and volume.

May 10th. Yesterday afternoon became very excited
and hysterical. He complained of all sorts of
indefinite pains. He put all his troubles down to
the beer. He was removed from the Tank at 6pm. But had to
be put back at 11pm as his temperature had risen to 101.
He slept for several hours after he was put back, and today
he is contented and happy, more especially as the beer
has been stopped.

May 15th. He has a slight Ame Paris but his general condition
is very good. The pulse is much stronger. The tongue
is quite clean and moist. He was removed from the Tank
at 1pm.

May 16th. Last night at 8pm his temperature was 100.9 so cold
Clothes were applied to the abdomen.

May 20th. There have been slight irregular rises of
the Temperature, but these have been easily controlled
with cold clothes.

June 16th. He was discharged today. Weight 58lbs
i.e., 11lbs more than on admission.
Case No 4.

John J, 7 years - 37 Page St Liverpool.

Admitted Sept 20th 1894, Discharged Dec 4th 1894.

Personal History, Altogether excellent.

Present illness, On Sept 16th he was attacked with
Vomiting, Pains in the head & abdomen.

On Sept 17th he had severe Epistaxis.

State on admission. He is a well nourished and healthy
looking boy. The Cheeks are pale, eyes bright and the
pupils dilated. The tongue is dry and covered with
white fur. The Abdomen is not distended nor tender
Liver & Spleen are both enlarged,

Pulse 102, full and bounding.

He was put on milk 2 pints, Barley water 1 pint.

Iced Clothes ordered to be applied frequently.

Sept 24th. He has been very restless since he was admitted,
and has been very troublesome about taking the milk.

He cries a good deal at the Iced Clothes.

The tongue is still furred. Pulse 100, and good.

Oct 4th. Nothing of interest has occurred since the
last note, and today he complains of feeling very hungry.

Oct 8th. The temperature for the last 4 days has kept
at rather a high level. He has a slight cough but
physical examination shows the lungs to be quite clear.

Oct 11th. Salol stopped. Put on Wellins food

Dr. Commanse. Chloride of
At. Hydrochloric Acid 1/2 gr.

Dr. Hunter

Dr. Smethurst
Oct 14th, He has been more or less restless since the last note. The temperature still keeps up in spite of the constant application of Iced Clothes. He is decidedly weaker and very pale.
The tongue is clean & moist, he is getting now Port wine 4oz in the 24 hours, also Benger's food.

Oct 15th, As the temperature still keeps very irregular the patient was put into the Tank.

Oct 20th, He has improved in a very marked manner. He now takes his food well, he is inclined to be fretful when left alone.

Oct 22nd, The temperature still runs up to 100-101. The pulse is stronger and the cough has quite gone. He had an excellent night last night and did not require the Puer powder.

Oct 24th, He has been very well since the last note. He takes his food well and sleeps most of the time.

Oct 25th, He was removed from the Tank today. The improvement since he was put into the Tank has been very marked & rapid.

Dec 4th, He made a good return to convalescence, and was discharged today.
Therapeutic Actions of the Tank.

1. Antipyretic. Except in a very few cases of marked Hyper-Pyrexia the Tank has not been used with the view of obtaining great remissions of Temperature. There does not seem to be any advantage gained by causing marked lowering of the temperature in case of continued fever e.g. Enteric etc. The pyrexia is merely a symptom, and unless it becomes an urgent symptom it is best left alone. Undoubtedly in the Tank we have a very powerful agent whenever necessary, more especially if the water be kept in a constantly moving condition.

The chief value of the Tank from an Antipyretic point of view is as an "Moderating Agent" and moreover it seems to approach more nearly to the ideal Antipyretic than any other method as yet known. It is very certain, and the amount of Antipyretic can be more or less accurately regulated. It acts on Thermolysis and Thermogenesis and also has a marked Thermotactic Action.

Increase of temperature is accompanied pari passu by increase of tissue waste, without any proportionate increase of tissue Production. Hence the great wasting that is always seen in cases of continued fever.

If the due relation between Katabolism and Anabolism be upset for any length of time the result is disaster. In many cases of Enteric etc, it is simply a question of how long can the patient hold out?

By getting daily remissions we give the patient a chance to make up some of the loss and lay in a fresh supply
of reserve force.

This moderating action is brought about in three ways-

1. Radiation from the patient's body to the surrounding water.
2. Evaporation, which is continually going on.
3. Increase of Systemic Blood Supply.
   a. This increases the facilities for the Radiation and Evaporation.
   b. It lessens internal Congestion, and this has far reaching effects on most of the Body Systems as well as on the Thermo Centres.

2. Circulation. The Tank relieves very much any extra strain on the heart's action by causing relaxation Systemic circulation,

The weight of water acting equally on all parts of the body surface exerts a distinct mechanical action on the general circulation, and greatly helps the action of the heart, and thus indirectly relieves the passive congestions of the large Internal Organs, so often seen in Enteric.

3. Hypnotic Action. This is due to Diminished Cerebral Congestion, and to the removal of the general body pains which result from a hard bed, creases etc.

4. Improves the general tone of the intestines by removing congestion and lessening general de-hydration.

I saw one case of acute Dysentery rapidly relieved by the Tank Treatment, after the other methods of treatment had failed.
The prevention of de-hydration prevents the rapid wasting and loss of weight so frequently seen and the great majority of the Tank cases showed marked powers of convalescence.

5. There is no trouble in moving the patient for sanitary purposes, and Bedsores are unknown.

The disadvantages of the method are—

1. Nervousness at the first time of the immersion. This sometimes necessitates an Hypnotic.

2. Softening and peeling of the skin.

3. Special nurses must always be in attendance.

4. Increased risk of contagion. In Hospital this can be very easily overcome and of course the method is practicable only in Hospital work.

Raymond F. Russell
M.B., C. L. T. Feb. 9, 1892.
## LIVERPOOL NORTHERN HOSPITAL

**Patients Name**: J. J.  
**Ward**: 15

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<tr>
<th>MONTH</th>
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*Notes:*
- Dates: 27, 28, 30, 31
- Temperatures: 99°F, 100°F
- Pulse: 108, 100
- Respiration: 22, 10
- B.O.: 2, 2
- Amount of Urine: 100
- Reaction: 100
- Sp. Gr.: 100
- Albumen: 100
- Blood: 100
- Leave: 100
- Sugar: 100
- Weight: 100
**LIVERPOOL NORTHERN HOSPITAL.**

Patient's Name: J. J  
**Ward:** 15

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**F°**

- **107°**
- **106°**
- **105°**
- **104°**
- **103°**
- **102°**
- **101°**
- **100°**
- **99°**
- **98°**
- **97°**

**PULSE**

- 90
- 100
- 110
- 120
- 130
- 140
- 150
- 160

**RESP.**

- 20
- 30
- 40
- 50
- 60
- 70
- 80
- 90

**B0.**

- 0
- 20
- 40
- 60
- 80
- 100

**AMOUNT OF URINE**

- 100
- 200
- 300
- 400
- 500
- 600
- 700
- 800

**REACTION**

- 0
- 10
- 20
- 30
- 40
- 50
- 60
- 70

**SP. GR.**

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8

**ALBUMEN**

- 0
- 1
- 2
- 3
- 4
- 5
- 6
- 7

**BLOOD**

- 0
- 1
- 2
- 3
- 4
- 5
- 6
- 7

**UREA**

- 0
- 1
- 2
- 3
- 4
- 5
- 6
- 7

**SUGAR**

- 0
- 1
- 2
- 3
- 4
- 5
- 6
- 7

**WEIGHT**

- 60
- 70
- 80
- 90
- 100
- 110
- 120
- 130

**Diagnosis:**

- 1st Day: Fever, Pulse 120, Resp. 22.
- 2nd Day: Fever, Pulse 120, Resp. 22.
- 3rd Day: Fever, Pulse 120, Resp. 22.

**Notes:**

- 1st of Feb: Patient improved.
- 2st of Feb: Normal.

**Signature:**

- Dr. T. T.
**LIVERPOOL NORTHERN HOSPITAL.**

**Patient's Name J. J.**

**Ward. 13**

<table>
<thead>
<tr>
<th>MONTH</th>
<th>January 1894</th>
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**Temperature (°F):**

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**Other Parameters:**

- **Pulse:** 110, 110, 100, 100, 90, 90, 80, 80, 70, 70, 60, 60
- **Respiration:** 20, 20, 20, 20, 20, 20, 20, 20, 20, 20, 20, 20
- **Temperature:** 98.6, 98.6, 98.6, 98.6, 98.6, 98.6, 98.6, 98.6, 98.6, 98.6, 98.6, 98.6
- **Weight:** 150 lbs, 150 lbs, 150 lbs, 150 lbs, 150 lbs, 150 lbs, 150 lbs, 150 lbs, 150 lbs, 150 lbs, 150 lbs, 150 lbs

**Additional Notes:**

- Day 24: Blood pressure 120/80
- Day 26: Pulse 80, Respiration 20
- Day 28: Blood pressure 110/70
- Day 30: Pulse 100, Respiration 20
- Day 31: Pulse 110, Respiration 20
<table>
<thead>
<tr>
<th>Patient's Name</th>
<th>J. J.</th>
<th>95</th>
<th>13 Ward</th>
</tr>
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<tr>
<td><strong>Blood</strong></td>
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<td><strong>Urea</strong></td>
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<tr>
<td><strong>Sugar</strong></td>
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<tr>
<td><strong>Weight</strong></td>
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<td>Patient's Name</td>
<td>T - J</td>
<td>Ward</td>
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**February 1894**

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**Pulse**

<table>
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<tr>
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<th>BO</th>
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<th>Reaction</th>
<th>Sp Gr.</th>
<th>Albumen</th>
<th>Blood</th>
<th>Urea</th>
<th>Sugar</th>
<th>Weight</th>
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</thead>
</table>

**Notes:**
- Taken out of bed at 7:30 am.
- Taken out of bed at 7:00 pm.
- Taken out of bed at 7:30 am.
- Taken out of bed at 7:00 pm.
# Liverpool Northern Hospital

**Patient's Name:** J. J.  
**Ward:** 13

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</table>


- **Pulse:** 80, 80, 80, 80, 80, 80, 80, 80, 80, 80, 80, 80, 80, 80, 80, 80, 80, 80, 80, 80, 80, 80.


- **Blood:** No. 91, No. 91, No. 91, No. 91, No. 91, No. 91, No. 91, No. 91, No. 91, No. 91, No. 91, No. 91, No. 91, No. 91, No. 91, No. 91, No. 91, No. 91, No. 91, No. 91, No. 91, No. 91.

- **Albumen:** Normal, normal, normal, normal, normal, normal, normal, normal, normal, normal, normal, normal, normal, normal, normal, normal, normal, normal, normal, normal, normal, normal.

- **Urea:** No. 91, No. 91, No. 91, No. 91, No. 91, No. 91, No. 91, No. 91, No. 91, No. 91, No. 91, No. 91, No. 91, No. 91, No. 91, No. 91, No. 91, No. 91, No. 91, No. 91, No. 91, No. 91.

LIVERPOOL NORTHERN HOSPITAL.

Patient's Name: J. J.

March - 1894

<table>
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<th>DAY</th>
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96° ME
PULSE RESPONSE

Bp. 

AMOUNT OF URINE

REACTION: 

SP. Gr.: 2.0

ALBUMEN: 

BLOOD: nil

LIPID: 

SUGAR: 

WEIGHT: 

Note: Read these figures at 2:30pm to date.

Note: Read these figures at 10:30am to date.
### LIVERPOOL NORTHERN HOSPITAL

**Patients Name: (J.)**

**Ward:** 15

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<table>
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</table>

**Temperature (°F):**

- 101.5
- 102
- 102.5
- 103
- 103.5
- 104
- 104.5
- 105
- 105.5
- 106
- 106.5
- 107

**Pulse Rate:**

- April 1894: 100
- May: 90

**Respirations:**

- April 1894: 20
- May: 20

**Amount of Urine:**

- April 1894: 100
- May: 80

**Reaction:**

- April 1894: Acid
- May: Acid

**Sp. Gr.:**

- April 1894: 10
- May: 10

**Albumen:**

- April 1894: 10
- May: 10

**Blood:**

- April 1894: 10
- May: 10

**Urea:**

- April 1894: 10
- May: 10

**Sugar:**

- April 1894: 10
- May: 10

**Weight:**

- April 1894: 10
- May: 10

*Note: The chart includes various readings and annotations for the patient's condition and treatment.*
# Liverpool Northern Hospital

**Patient's Name:** J. T.  
**Ward:** 15th Ward

<table>
<thead>
<tr>
<th>Month</th>
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<tbody>
<tr>
<td>Day</td>
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## Liverpool Northern Hospital

**Patient's Name:** J. 34 (age 4 of note)  9th 15  Ward.

### Medical Record

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**Remarks:**
- Sept 4: "Initial note of mild fever and headache.
- Sept 10: "Temperature slightly elevated, headache resolved.
- Sept 13: "Temporary improvement, headache returned.
- Sept 15: "Temperature normal, headache resolved.

**Note:** All medical terms and abbreviations used in the chart are standard and understood within the context of medical practice at the time of the record.
LIVERPOOL NORTHERN HOSPITAL

Patients Name: J. J

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**Remarks:**
- Pulse: 90
- Respiration: 20
- AMOUNT OF URINE: 800 cc.
- REACTION: Acid
- SP. GR.: 1.010
- ALBUMEN: Trace
- BLOOD: Clear
- UREA: Normal
- SUGAR: Normal
- WEIGHT: Stable

**Medical Observations:**
- Patient's fever noted on 30th.
- Marked improvement observed on 1st.
- Daily chart shows fluctuating temperature.

**Laboratory Observations:**
- Urine: Light yellow, clear.
- Blood: Normal
- Sputum: Clear

**Notes:**
- Patient discharged on 22nd.
- Follow-up recommended.
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**Notes:**
- High fever, complained of headache and dizziness.
- Temperature fluctuates.
-汗多, 疲勞, and headache.
- Blood pressure: 110/70.
- Urine analysis: normal.
- Sputum: negative.

**Diagnosis:**
- Ponty fever, pneumonitis.

**Treatment:**
- Administration of antipyretics.
- Rest and hydration.
- Respiratory support.

**Progress Note:**
- Patient's condition improves with treatment.
- Discharged on October 31, 1894.
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**Note:**
- **Ft:** Feet
- **°F:** Degrees Fahrenheit
- **°C:** Degrees Celsius
- **Pulse:** Heart Rate
- **Resistence:** Resistance
# LIVERPOOL NORTHERN HOSPITAL

Patient's Name: J - J  
Ward: 15

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<table>
<thead>
<tr>
<th>Temperature (°F)</th>
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<tbody>
<tr>
<td>105°</td>
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<td>104°</td>
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<td>98°</td>
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<tr>
<td>97°</td>
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<tr>
<td>96°</td>
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</tbody>
</table>

- Pulse: 70
- Respiration: 20
- Urine: STM
- Reaction: -2.5
- SG: 1.025
- Albumen: Negative
- Blood: Clear
- Urea: 48
- Sugar: Positive

Notes:
- Head pain was relieved.
- Blood pressure was taken.
- Blood was found in the urine.
- Blood sample was sent for analysis.
"A Tank" in Ward 13
St. Mary's Hospital

Aug. 1893